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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,479	12/15/2003	Anna Yen	P206	3490

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EXAMINER

ROSSI, JESSICA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/736,479

Applicant(s)

YEN ET AL

Examiner

Jessica L. Rossi

Art Unit

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/15/03</u> | 6) <input type="checkbox"/> Other: ____ |

HC

DETAILED ACTION

Claim Objections

1. Claims 1, 3 and 5 are objected to because of the following informalities:

Claim 1, line 3: "sheets" should be deleted before "filamentary".

Claim 1, line 8: ", said first layer of adhesive" should be deleted before "having".

Claim 1, line 14: "core" should be deleted.

Claim 1, line 19: "adhesive" should be --adhesives--.

Claim 1, lines 21-22: "layer of adhesive has" should be --layers of adhesive have--.

Claim 3, line 1: "the resin in" should be deleted.

Claim 5, line 1: --of-- should be inserted before "vacuum".

Claim 5, line 2: ", the steps" should be deleted.

Claim 5, line 4: --the-- should be inserted before "dam".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, it is unclear what temperature Applicant is referring to in line 23.

Applicant is asked to clarify. It is suggested to insert --gel-- after "raising the".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art in the specification of the present application in view of the collective teachings of Xu et al. (US 6391436) and Waldrop et al. (US 20020022422) and also in view of Rhodes et al. (US 4063981).

With respect to claim 1, it appears Applicant is teaching it being known in the art to make composite parts by first constructing a pre-form sandwich assembly on a mold surface wherein a honeycomb core is sandwiched between first and second covers, each made of multi-layer filamentary sheets pre-impregnated with a resin, and an adhesive sheet located between each cover and the core. The sandwich assembly is then placed in a vacuum bag so that a vacuum can be drawn on the assembly, and while this vacuum is drawn, the assembly is heated to the cure temperatures of the adhesive and resin thereby curing the adhesive and resin to form the composite part (p. 1, line 19 – p. 2, line 4).

The Admitted Prior Art is silent as to separately de-bulking the covers, the adhesive having a curing temperature less than that of the resin, initially heating the assembly at a heating rate of 0.5-2°/min until the gel temperature of the adhesive is reached, holding the gel temperature until the adhesive cures, raising the temperature to the resin curing temperature, and maintaining the resin curing temperature until the resin cures.

It is known in the art of making composite parts to de-bulk laminates made of filamentary material sheets pre-impregnated with a resin to remove air from the laminates before they are assembled with other pre-impregnated laminates and/or a honeycomb core and then placed into a vacuum bag where heating and pressing takes place to cure the resin and bond the assembly, as taught by the collective teachings of Xu (column 7, lines 26-29; column 17, lines 34-57) and Waldrop (p. 1, section [004]).

Therefore, it would have been obvious to the skilled artisan to separately de-bulk the covers of the Admitted Prior Art before forming the assembly and placing it in the vacuum bag because such is known in the art, as taught by the collective teachings of Xu and Waldrop, where this removes air from the covers that would jeopardize the strength of the composite part.

It is also known in the art to make a composite part comprising a honeycomb core sandwiched between first and second skins, each made of filamentary layers pre-impregnated with a resin, and an adhesive located between each skin and the core wherein the adhesive (reference also refers to it as “bonding resin”) has a curing temperature less than that of the resin, as taught by Rhodes (Figure 2; column 2, lines 32-50; column 3, line 29 and 41-44; column 4, line 62 – column 5, line 18; **especially**, column 5, lines 2-5 and 10-18).

Selection of particular resins and adhesives for that of the Admitted Prior art would have been within purview of the skilled artisan. However, it would have been obvious to the skilled artisan to use an adhesive having a curing temperature less than that of the resin because such is known in the art, as taught by Rhodes, where curing the adhesive first allows it to hold the covers in place against the core during fabrication of the composite part.

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Furthermore, since the Admitted Prior Art teaches a one-stage process where curing of both the adhesive and resin takes place within the vacuum bag, it would have been obvious to the skilled artisan to initially heat the assembly until the gel temperature of the adhesive is reached, hold the gel temperature until the adhesive cures, raise the temperature to the resin curing temperature, and maintain the resin curing temperature until the resin cures.

As for a particular heating rate to reach the gel temperature, such would have been within purview of the skilled artisan depending on the type of adhesive used.

Regarding claim 2, the Admitted Prior Art is silent as to the magnitude of the vacuum. Selection of such would have been within purview of the skilled artisan.

Regarding claim 3, the first curing temperature (curing temperature of resin) would depend on the type of resin used, which would have been within the purview of the skilled artisan; it being noted that Rhodes teaches a well-known and conventional resin used to pre-impregnate filamentary sheets that cures at 350°F (column 2, lines 48-50; column 5, lines 15-18).

Regarding claim 4, selection of a particular heating rate to reach the gel temperature would have been within purview of the skilled artisan depending on the type of adhesive used.

Regarding claims 5, the Admitted Prior Art is silent as to these limitations. However, it would have been obvious to form a resin containment dam about the pre-form and provide a path through the dam such that the vacuum can be drawn from within the dam because such is known in the art, as taught by Xu (Figure 1; column 8, lines 23-45), where such prevents typical components used in a vacuum bagging process along with the vacuum bag itself (i.e. films 4, 16) from joining together under vacuum (Xu; column 8, lines 23-45).

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Regarding claim 6, selection of a particular distance from the dam to the pre-form would have been within purview of the skilled artisan.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **571-272-1223**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine R. Copenheaver can be reached on 571-272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jessica L. Rossi
Primary Examiner
Art Unit 1733